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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,213	06/26/2003	Chun-Kyu Woo	P23884	3734

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EXAMINER	
MARC, MCDIEUNEL	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,213	WOO ET AL.	
	Examiner	Art Unit	
	McDieunel Marc	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 13* is/are rejected.

7)☒ Claim(s) *14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-18 are presented for examination.

Specification

2. The abstract of the disclosure is objected to because [In the conventional cleaning robot, by mainly using each supersonic waves sensor having a sensing range as ±30 in consideration of an appropriate sensitivity, when for supersonic waves sensors are installed at a cleaner main body, a sensing range as 240° is obtained, and accordingly it is impossible to observe surroundings of the cleaner thoroughly. In order to solve the above-mentioned problem, a position information recognition apparatus for a cleaning robot in accordance with the present invention includes a] should be replaced by -- A --. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by **Hulden** (U.S. Pub. **20040193339 A1**).

As per claim 1, Hulden teaches a navigation control system for a robotic device having a position information recognition apparatus for a cleaning robot (see figs. 1-2, comprising: a fixed plate installed at a cleaner main body (see figs. 1-2); a main motor fixedly installed at the fixed plate in order to generate a rotational force (see figs. 1-3 and fig. 4, particularly wheel motors); a rotational cylinder combined with a rotational axis of the main motor (see figs. 1-3) so as to be rotated at a certain angle (see section [0013]); and plural position information sensors installed at the rotational cylinder at a certain angle in order to sense surroundings (see figs. 1-2, elements 12, 12a and 13). With respect to claim 13, Hulden also teaches a main body of a cleaning robot (see figs. 1-2), comprising: a sensor assembly rotatively installed at the top front surface of the cleaner main body in order to observe surroundings (see figs. 1-2, element 13 as seen above); a sensor assembly receiving portion concavely formed or pierced so as to hide the sensor assembly (see figs. 1-2, elements 12, 12a and 13 as seen above); and a sensor hiding unit formed at a side of the sensor assembly receiving portion in order to move the sensor assembly up and down (see fig. 1-2 as described above).

As per claim 2, Hulden teaches a system, wherein the fixed plate has a disc shape, and the lower end of the main motor is fastened-combined with the central portion of the fixed plate by a screw (see figs. 1-4), note that inherently, screws being used to fastened the robot.

As per claim 3, Hulden teaches a system, wherein the fixed plate includes a sensor hiding means for ascending the position information sensor as a certain height so as to be exposed outside of the cleaner main body in an operation state and descending the position information sensor into the cleaner main body in charging or an operation stop state (see figs. 1-2, elements 12, 12a and 13 as seen above).

As per claims 4-5, Hulden teaches a system, wherein the main motor is a two-way rotational motor rotating forward or backward at a certain angle; the main motor has a rotational angle as ±45° (see fig. 4 wherein the motors are considered to be forward or backward type and capable of performing ±45°), moreover these limitations are not the inventive step for they are well known.

As per claim 6, Hulden teaches a system, wherein the main motor has a guide plate supporting protrusion projected-formed at three points of the top surface centering around the rotational axis (pictorially the above limitation has been covered).

As per claim 7 Hulden teaches a system, wherein the position information sensor is installed at the outer circumference of the rotational cylinder at an interval of 90° (see figs. 1-3).

As per claim 8, Hulden teaches a system, wherein the rotational cylinder includes: an inner cylinder rotatively mounted on the top portion of the fixed plate (see figs. 1-3), inserted into the outer circumference of the main motor and having an electromotive protrusion at the upper inner circumference of the rotational cylinder so as to be combined with the rotational axis of the main motor (see figs. 1-3 and 7); and an outer cylinder fastened-combined with the upper end of the inner cylinder so as to be rotated together with it and having the position information sensors at the outer circumference of the rotational cylinder at regular intervals (see figs. 1-3).

As per claim 9, Hulden teaches a system, wherein the inner cylinder is cylindrical-shaped having the open top and bottom (see fig. 1, where the top being considered as an open one), a flange portion is formed at the lower end outer circumference thereof to rotate the rotational cylinder stably, and a flange portion is formed at the upper end outer circumference thereof to be combined with the outer cylinder strongly (see fig. 1 and pictorially).

As per claim 10, Hulden teaches a system, wherein the outer cylinder has the open bottom and the closed top as a cap shape and includes an insertion hole formed

at the top central portion so as to receive the rotation guide plate (see fig. 1, wherein the pictorial slots being considered insertion hole).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Helden** in view of Song *et al.* (U.S. Pat. No. **6,496,754**).

As per claim 11, Hulden teaches substantially essential features of the claimed invention, but Hulden fail to specifically teach the following limitation taught by Song *et al.*

However, Song *et al.* a system, wherein the rotational cylinder has a guide plate insertion hole at the top central portion in order to receive a rotation guide plate combined with the main motor as one body (see fig. 1, element 21).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the Hulden' s robot wit the robot type of Song *et al.*, because this modification would have increased Hulden' s robot so that central portion element 21 of figure 2 can be considered as means for guidance, thereby improving the efficiency and the reliability of the position information system for cleaning robot.

As per claim 12, Hulden teaches a system, wherein an external display means is installed at the top surface of the guide plate in order to display information about an operational state of the cleaner or various circumstances (see fig. 1, particularly the oval part on top front).

Allowable Subject Matter

8. Claims 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

As per claim 14, Hulden teaches a system, wherein the sensor hiding unit includes: a two-way rotational motor (see fig. 4 as described above); a pinion combined

with a rotational axis of the two-way rotational motor and being rotated two-way (inherently the system contains a pinion). However, the prior art of record fail to teach of fairly suggest a rack combined with the pinion and being linearly moved up and down according to the rotational direction of the pinion; and a sensor supporting plate formed as one body with the rack and combined with a fixed plate of the sensor assembly in combination with the other features of the claimed invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to McDieunel Marc whose telephone number is (703) 305-4478. The examiner can normally be reached on 6:30-5:00 Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

McDieunel Marc

Friday, March 04, 2005
MM/

THOMAS G. BLACK
SUPERVISORY PATENT EXAMINER
GROUP 3600